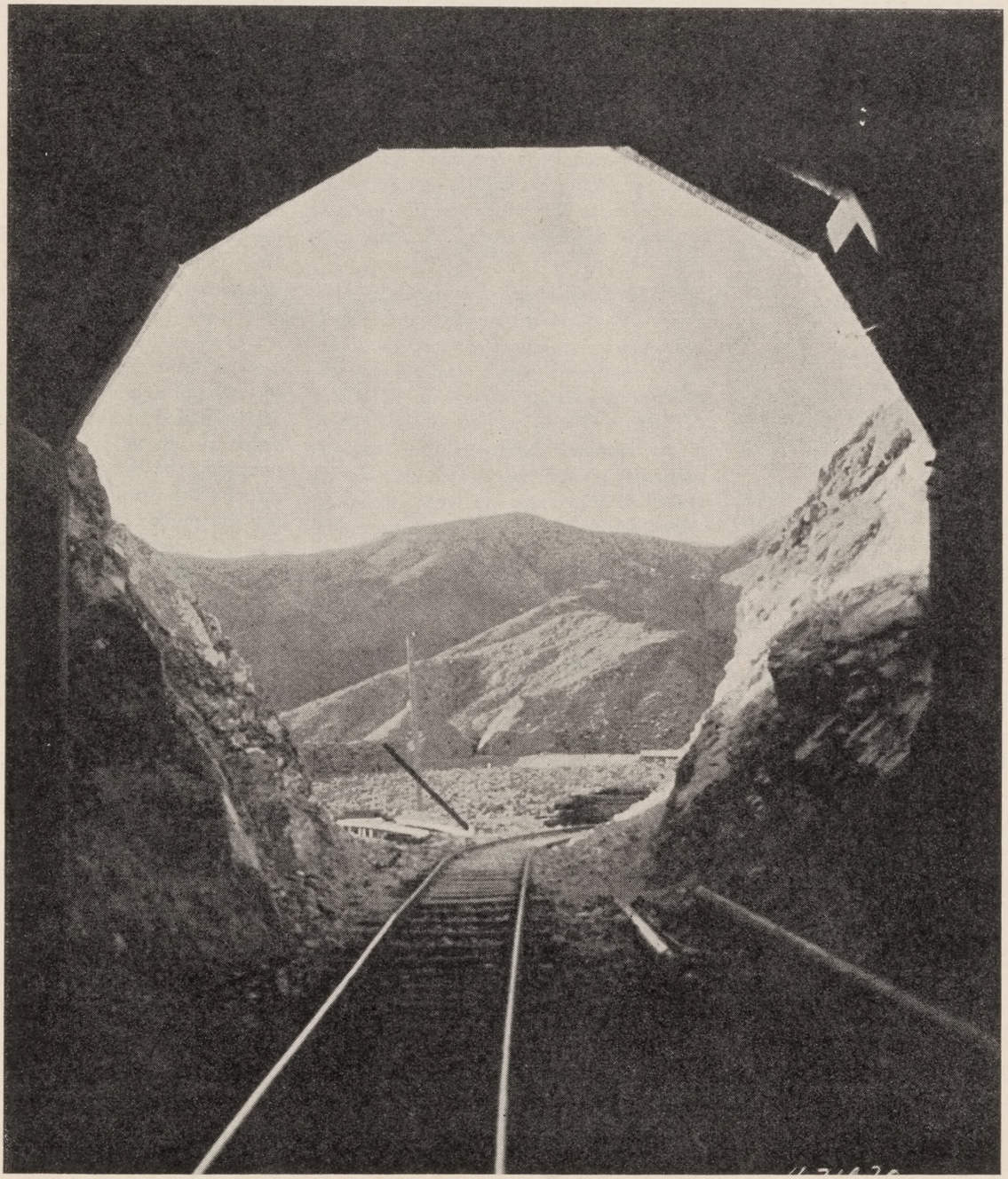
• COLORADO RIVER •

AQUEDUCT NEWS

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Vol. 1 FEBRUARY 5, 1934 No. 2



WEST PORTAL, WIDE CANYON TUNNEL NO. 2

Nearly 12 miles of sixteen-foot Colorado River Aqueduct tunnels were excavated up to January 31, 1934 . . . 3.09 miles were driven between January 1 and January 31 alone. . . . Thus, with steadily increasing speed, aqueduct crews are pressing forward with the driving of 91 miles of sixteen-foot bore, the largest tunnel job in history. **(See Page 6.)**

· COLORADO RIVER ·
AQUEDUCT NEWS
THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
LOS ANGELES, CALIFORNIA

Published twice monthly in the interest of Field and Office Workers on the Colorado River Aqueduct, and for the information of all other citizens of the Metropolitan Water District.

Vol. 1 February 5, 1934 No. 2

RACKETEERS

Elsewhere in this issue will be found an account of an investigation by the Los Angeles County District Attorney's office into activities of racketeers seeking to victimize applicants for employment on the Colorado River Aqueduct.

Acting upon information laid before them by the Metropolitan Water District, attaches of the District Attorney's office have called in and questioned several persons who are said to have sold letters of "recommendation" at $3 a letter. Job seekers were assured that these worthless documents would guarantee them employment on the aqueduct project.

That these abuses have been discovered is good news to every worker on the aqueduct and to every citizen of the Metropolitan Water District who believes in fair play. It is difficult to imagine anyone more loathsome than the type of individual who will, in times like these, prey upon honest citizens seeking a means to earn a living.

OLD ORDER CHANGETH

Already this magazine is keeping a promise made in its first issue—a promise that the NEWS will be changed from time to time as experience reveals how alteration can make it better fitted to serve the workers on the Colorado River Aqueduct.

The first major change, effective with this issue, has been in the dates of publication. Instead of being released on the first and fifteenth of each month, the NEWS will come off the press on the fifth and the twentieth.

This shift in time was decided upon because it was found that the new dates more closely coincide with the compilations of progress records of the various tunnel jobs.

GENERAL MANAGER REVIEWS ACTIVITIES OF MONTH ON AQUEDUCT

(EDITOR'S NOTE: *The following is a brief summary of the monthly report of General Manager and Chief Engineer Weymouth, filed with the Board of Directors in January, covering work during December. These summaries will be presented at regular intervals.*)

Legal Division—The case of District vs. Toll, et al, to test the validity of paying interest charges from bond funds has been accepted by the Supreme Court of the State, and will be submitted without oral argument.

Miscellaneous Activities Division—Organization of a speakers' bureau of District employees is being perfected to provide aqueduct information in response to many requests from civic and commercial groups.

Field Engineering Division—In addition to routine engineering and inspection work, field parties from the Division continued work throughout the month on location surveys of the Black Canyon transmission line to carry power from Boulder Dam to the aqueduct pumping plants. Surveys for the Parker reservoir and dam site were continued. First-aid courses and mine rescue training were given to men in various construction camps. The executive safety committee, whose membership consists of representatives from the tunnel contractors, the Coachella Division, and the safety engineer, held its regular monthly meeting at Indio with cooperative agencies.

Construction Division—(See progress table on Page 6.)

Office Engineering, Civil—Draft of specification for canals, conduits, and siphons between Colorado River and Iron Mountain Pump lift was made ready for issuance when additional funds become available. Plans for forms submitted by the contractor for the East Fan Hill conduit and siphon sections were reviewed and approved. Tests have continued on the siphon model at Sunset Reservoir in Pasadena, and a model of Parker Dam has been completed. A report on capacity and general location for the first development of the distribution system was completed. Field and office work continued on surveys, estimates, and plans for the distributing system continued. Two test pits were completed to solid rock at the Cajalco north dam location, and exploratory work to locate material for construction of the Cajalco Dams was completed.

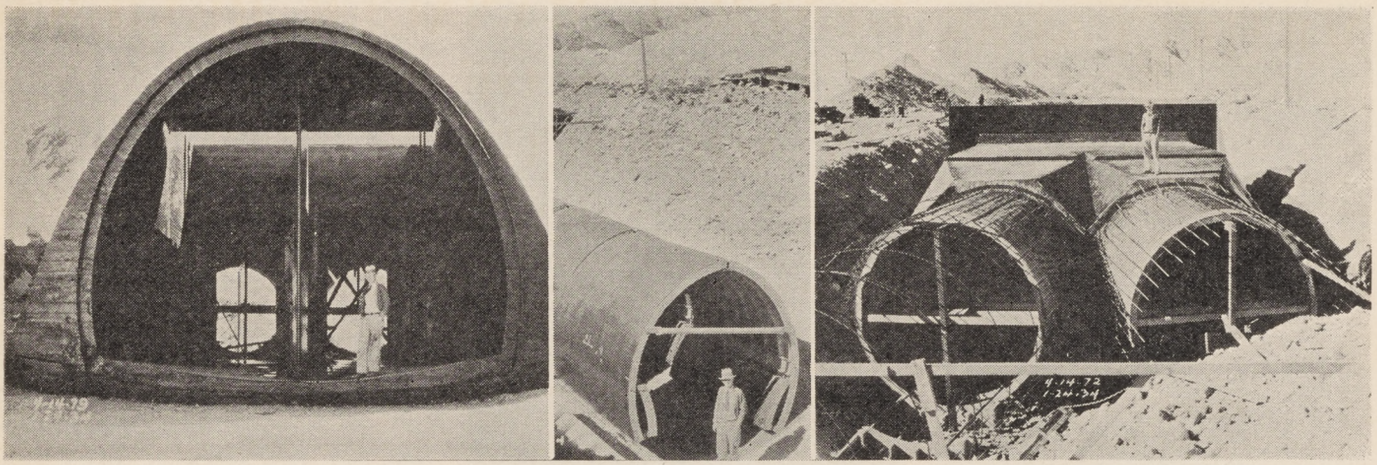
Electrical Engineering Division—Work was continued on estimating the cost of aluminum and copper transmission lines from Boulder Dam. Test installations were made at Danby Dry Lake crossing, and soil samples were taken to determine the action of alkali soil on construction materials. Plans for the testing laboratory at California Institute of Technology were practically completed. A traveling crane was purchased and installed at the laboratory, and an order was placed for a dynamometer for operating the test pumps. Bids were received from various manufacturers for the test pumps. All work in connection with the installation of voltage regulators and circuit breakers on the temporary power system should be completed by February 1. Work was continued on the study of various types of buildings and arrangement of apparatus for the permanent pumping plants. Design work was started on typical details of pressure pipe anchors, pumping plant intakes, and conduit connections.

Right of Way Division—Regular work was continued on the securing of aqueduct rights of way.

Personnel Division—One hundred and eighteen applications were approved, bringing the total approved applications on file up to 11,531.

Purchasing Division—Purchases during the month of December amounted to $207,583.86, covered by 853 individual purchase orders.

Accounting and Costkeeping Division—Actual costs to December 21, 1933, amounted to $11,860,164.84, covering portions of works and activities, the total cost of which is estimated at $60,333,202.



The first Colorado River Aqueduct siphon takes form at Fan Hill — Left: Looking from conduit into siphon. Center: Steel interior forms for twelve foot four inch siphon. Right: Twin barrels of siphon entering transition.

SIPHON CONSTRUCTION MARKS NEW PHASE OF AQUEDUCT PROGRESS; FIRST CONCRETE POURED

Out in the Little San Bernardino Mountains—in the wash which separates the East and West Coachella Tunnels—a new phase of Colorado River Aqueduct construction is in its first stages of development as Metropolitan Water District crews press forward with the building of Fan Hill Siphon.

Their activity is of historical interest because it marks the pouring of the first concrete on the aqueduct proper. Division Engineer R. B. Diemer reports that the first of the project's 4,700,000 cubic yards of concrete was poured on January 17.

The work constitutes part of an experiment designed to determine the relative merits of two types of concrete siphon—monolithic and pre-cast. The Fan Hill siphon is to be monolithic. At a later date work will be started on the pre-cast Little Morongo siphon, thus giving District engineers a definite basis for comparison.

150 Siphons

These two siphons are the first of 150, totaling 27 miles in length, which will be built to carry aqueduct water across declevities in the desert terrain between the Colorado River and Cajalco Reservoir, the terminal storage basin of the aqueduct's main line.

The first section of the Fan Hill siphon already has been poured. The east end of the work is 350 feet westerly from the west portal of the Pushawalla section of the West Coachella Tunnel.

Leaving the tunnel, the conduit is in the shape of a gentle arch on top, with a convex bottom inside. Where it joins the circular siphon, it enters a box-like transition section. Although provision is made at the transition for two siphon barrels, only one will be constructed, the other being left for later development.

Flood Danger Eliminated

The portion lying on the floor of the wash will be buried from three to four feet below the surface of the ground. This is to eliminate the danger of cloudbursts washing out the conduit.

The work consists of the construction of about 700 lineal feet of monolithic reinforced concrete siphon designed to operate under a maximum hydraulic head of about 45 feet, with a 50-foot concrete transition section at each end. The west end of the siphon is connected with about 700 feet of the semi-elliptical concrete conduit.

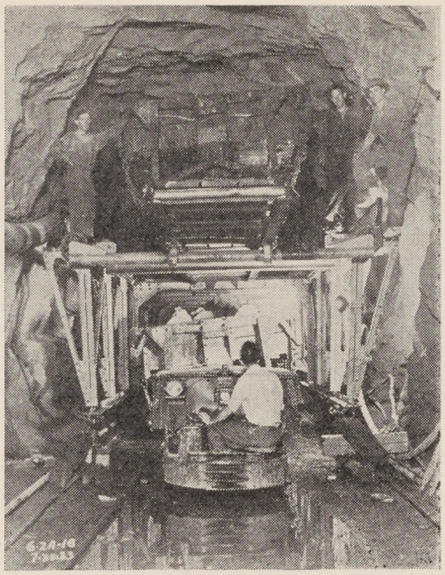
The interior of the siphon is to be circular, twelve feet four inches in diameter. The shell will be twelve inches thick. The exterior is nearly hexagonal. Steel forms are being used on the interior and wooden for the exterior. The siphon is being constructed in a huge trench, the maximum depth of which is thirty feet, and the average width of which is fifteen to twenty feet. About two yards of concrete is poured for each foot of pipe.

On the conduit steel forms are used inside and outside. The concrete section will be sixteen feet high inside, with an overall height of eighteen feet four inches. The bottom width will be nineteen feet inside and twenty-eight feet outside. About four and a quarter yards of concrete is used per foot. It is poured in seventy-foot lengths with contraction joints and water stops each thirty-five feet.

Local Materials Used

The materials excavated from the trench in which the work is being done have been tested at the District's laboratory at Banning and have been found to be first class for making concrete. A screening and mixing plant has been set up at the site. A unique feature of the job is the placing of concrete with pumpcrete equipment, which pumps the mixed concrete into the forms with air pressure at a rate of 40 yards per hour.

An idea of the large size of the transition already built can be gained from the fact that the structure—50 feet long, 18 feet 10 inches high, and 28 feet six inches wide across the bottom—contains 456 tons of concrete and 17 tons of reinforcing steel, making a total weight of 473 tons.



Of interest along the aqueduct last week were Whitewater and Bernasconi Tunnels. Left—A scene in Whitewater Tunnel No. 2, showing a typical section of the steel liner plate which has made it unique among the aqueduct bores. Right—The King "grasshopper" in Bernasconi Tunnel.

Unique Features Mark Jobs At Bernasconi, Whitewater

Unique among the tunnel jobs on the Colorado River Aqueduct is Whitewater Tunnel No. 2 where, up to January 20, 2,224 feet had been driven, all of which was supported continuously with steel.

The total weight of the steel support thus far installed is 1,000,000 pounds.

Unusually soft ground being penetrated is the reason for the heavy use of steel. Excavation has been in sand and compacted gravel containing some boulders.

Because of this condition, comparatively light shooting is required. Excellent progress is being made on the job, and the tunnel is considered one of the cleanest looking on the entire project.

The tunnel is being driven by the West Construction Company, with Angus MacDonnell as superintendent. The total length of the bore will be 8,146 feet. The West organization also has a contract for the construction of Whitewater Tunnel No. 1, 2,060 feet in length. The access cut for this bore is 98 per cent completed.

Hamilton & Gleason's Bernasconi Tunnel continued last week to be a point of interest on the Colorado River Aqueduct project as the original testing ground for a new type of tunnel equipment—the King "Grasshopper."

Invented by H. J. King, superintendent at Bernasconi, the device embodies features of a drill carriage and a car shifter. The accompanying photograph shows how loaded and empty dump cars are handled.

The "grasshopper" was invented by Superintendent King after years of tunnel experience, including work on the famed Cascade bore. It was put into operation for the first time when Hamilton & Gleason launched excavation of their Bernasconi contract.

That the idea had merit was evidenced by the fact that "grasshoppers," with variations, have been put into operation on four other aqueduct tunnel jobs —Walsh Construction Company's Copper Basin Tunnel No. 2 and Whipple Mountain Tunnel; J. F. Shea Company's Cottonwood job, and Morrison-Knudsen's Mecca Pass Tunnel No. 3.

Safety On the Aqueduct

By T. W. OSGOOD,
Safety Engineer

More than four thousand men are now employed in constructing the Colorado River Aqueduct, with monthly increases being made. Of this total number, approximately seventy-five per cent, or three thousand, are married men with dependents.

It is of vital interest to all engaged in this great undertaking to prevent accidental injuries to these men, and the resulting consequences to them, to their families, and to others who may be affected.

By devoting sufficient thought and study to the matter of accident prevention, you will be convinced that most all accidents can be prevented through good supervision and the cooperation of employees.

Good supervision embraces carefully planning the job, issuing proper instructions and knowing that they are thoroughly understood and obeyed.

Cooperation consists of observance of safety rules and instructions at all times, and of refraining from careless or thoughtless acts which, in themselves, appear to be trivial, but which frequently cause serious or minor injuries to oneself or to co-workers. In this connection, the accident reports which come to this office reveal a large number of injuries which have been caused by the following or similar acts:

"Threw piece of drill steel from bench striking a workman in the neck; dropped axe on foot; caught finger between steel and shell of machine; driving nail in tunnel timber and hit finger."

Although it is recognized that frailties such as these are common to most humans, the exercise of a little care will prevent many such injuries. You owe it to yourselves and to your associates to be careful and considerate.

IT IS TIME TO DECLARE WAR . . . When anyone says accidents are bound to occur; when we try to excuse ourselves for unsafe conditions or practices; when the statement is made that accident prevention work retards progress. . . . STOP ACCIDENTS!

Job Racketeers Subject of Probe

Acting on information provided by Metropolitan Water District officials, the District Attorney's office in Los Angeles is conducting an investigation into activities of individuals alleged to be conducting a "racket" preying upon men seeking employment on the Colorado River Aqueduct project.

A number of persons have been summoned to the District Attorney's office and questioned by Russel Broker, a deputy assigned to the complaint department.

Information secured by the District revealed that a number of men seeking aqueduct employment have paid $3 each for letters of recommendation which they were assured would guarantee them employment. The letters in each case were fictitious and carried no weight whatsoever.

Because of the asserted fraudulent representations, fraud charges are being prepared, and may be filed against offenders upon further investigations.

Memory of Torrance Director Honored By Board

Lauding J. R. Jensen as a fellow director and a friend, a resolution in honor of the memory of the Director from Torrance has been forwarded by the Board of Directors of the Metropolitan Water District to the family of Director Jensen and to the Mayor and City Council of Torrance.

Mr. Jensen, who was city attorney for his community as well as Torrance's representative on the District board, passed away after a comparatively brief illness.

He is survived by his mother, Mrs. Mary Jensen, of Galesville, Wisconsin; his widow, Mrs. Louise Jensen; one son, John; one sister, Mrs. Robert Ashley of Clear Lake, Wisconsin, and a nephew, Robert Ashley, of Torrance.

Mr. Jensen has been succeeded on the District Board by Charles T. Rippy.

BIDS OPENED ON NINE MORE MILES OF AQUEDUCT TUNNEL

BULLETIN

Acting on the recommendation of General Manager Weymouth, the District Board on Friday, February 2, awarded the contract for the East Eagle Mountain bore to Broderick and Gordon. The Board authorized construction of the seven miles of Coachella tunnel by District forces when it was revealed that Mr. Weymouth's estimates for this work were $410,000 lower than the lowest contractors' bids received.

Low bids totaling $4,462,505 were received January 30 by the Metropolitan Water District on nine miles of Colorado River Aqueduct tunnel, including all the remaining bores on the main line of the aqueduct not yet under contract or under construction.

Eleven contractors submitted bids to the District. The three low bidders, prelinary tabulations indicated, were Broderick and Gordon, of Denver; Dravo Contracting Company, of Pittsburgh, and Silas Mason Company, of New York City.

The work contemplated includes the East Eagle Mountain Tunnel, Morgongo Tunnels Nos. 1 and 2, Blind Canyon Tunnel, Long Canyon Tunnel, and the west half of Seven Palms Tunnel.

The bids received yesterday will be used by the board of directors of the District in making a decision as to whether the tunnels shall be driven by contractors or by forces employed directly by the District.

Sealed estimates on the cost of constructing the bores with District forces were submitted to the board on January 26 by General Manager and Chief Engineer F. E. Weymouth, and will be considered at the time the board receives his report and recommendation on the contractors' bids.

Low bidder on the East Eagle Mountain bore, 1.79 miles long, was Broderick and Gordon with a price of $912,720. This firm already is at work on the east portion of the West Eagle Mountain Tunnel of the aqueduct.

The Dravo Company submitted a low figure of $1,495,225 on driving the west half of Seven Palms Tunnel and Long Canyon Tunnel, totaling 3.14 miles in length. Valverde Tunnel of the aqueduct is being driven by this firm.

Lowest eligible bid on constructing the west half of Long Canyon Tunnel, Blind Canyon Tunnel, and Morongo Tunnels Nos. 1 and 2 was $2,054,810, submitted by Silas Mason. This work aggregates 3.95 miles.

$8,064,000 Aqueduct Bonds Sold to R. F. C.

Funds to finance Colorado River Aqueduct construction over the next six months period were provided by a recent action of the Board of Directors of the Metropolitan Water District, accepting a bid from the Reconstruction Finance Corporation on an $8,064,000 block of aqueduct bonds.

The sale brings the total amount of the aqueduct bonds disposed of to date up to $22,176,000. All bonds have been sold to the Federal Corporation and bear an interest rate of five per cent.

CROSSCUT COMPLETED

Accelerated progress on the aqueduct's second longest tunnel, the 13-mile San Jacinto bore, is anticipated following the completion, on January 17, of the crosscut connecting the main tunnel line with the base of the 261-foot vertical shaft at Cabazon.

The length of the crosscut, including 104 feet of tailtrack, is 1,039 feet.

GENERAL COUNSEL RETURNS

James H. Howard, General Counsel of the District, returned to his office on January 29th after having spent two weeks in Washington in connection with pending legislation relating to financing of Public Works projects, also in connection with the recently authorized Public Works Administration loan of Two Million Dollars made for the purpose of initiating the construction of Parker Dam.

BEST PROGRESS
This Period
J. F. SHEA CO.
West Cottonwood
716 ft.

TUNNEL PROGRESS

January 1 to 31, 1934

BEST WEEK'S RECORD
This Year
WEST CONSTRUCTION CO.
Whitewater No. 2
184 ft.—Jan. 13th

CONTRACTOR	TUNNELS ON CONTRACT	Length in feet	Excav. Progress in ft. This Period	Excav. Progress in ft. Total to date
Walsh Constr. Co.	COLORADO RIVER	(5640)		
	West Portal	5640	0	0
	COPPER BASIN, No. 1	(757)		
	West Portal	757	0	0
	COPPER BASIN, No. 2	(11,580)		
	East from adit	1878	662	1017
	Adit	613	0	613
	West from adit	9702	495	941
	WHIPPLE MT.	(32265)		
	East from adit	18352	468	841
	Adit	1020	0	1020
	West from adit	13913	447	734
Winston Bros.	IRON MT.	(39805)		
	East from shaft	9890	173	338
	Shaft	181	0	181
	West from shaft	13743	552	1109
Utah Constr. Co.	IRON MT. West Portal	16172	617	4024
Winston Bros.	COXCOMB	(17795)		
	East Portal	8765	615	2355
	West Portal	9030	0	0
Broderick & Gordon	WEST EAGLE MT.	(26,503)		
	East from adit	7880	0	0
	Adit	1950	565	1918
	West from adit	7974	0	0
L. E. Dixon & Bent Bros.	WEST EAGLE MT. West Portal	10649	601	1821
Hunkin & Conkey	HAYFIELD, No. 1	(9677)		
	East from adit	5317	285	285
	Adit	618	34	468
	West from adit	4360	0	0
Shofner & Gordon	HAYFIELD, No. 2	(5375)		
	West Portal	5375	379	1069
J. F. Shea Co.	COTTONWOOD	(20105)		
	East Portal	10114	596	2688
	West Portal	9991	716	2707
Morrison-Knudsen	MECCA PASS	(5900)		
	No. 1	325	0	0
	No. 2	970	0	0
	No. 3	4605	598	1510
West Constr. Co.	WHITEWATER	(10206)		
	No. 1, West Portal	2060	0	0
	No. 2, East Portal	8146	715	2445
Wenzel & Henoch	SAN JACINTO	(67,415)		
	East from Cabazon	8553		
	Cabazon shaft	261	0	261
	Cross drift	1039	229	1039
	West from Cabazon	22839	25	25
	East from Potrero	20589	0	0
	Potrero shaft	796	77	589
	West from Potrero	6712	0	0
	West Portal	8722	230	829
Hamilton & Gleason	BERNASCONI	(6220)		
	East Portal	6220	189	2022
Dravo Contr. Co.	VALVERDE	(37,150)		
	East from Shaft 1	1275	147	147
	Shaft 1	80	0	73
	West from Shaft 1	3462	156	156
	East from Shaft 2	3463	461	1624
	Shaft 2	226	0	226
	West from Shaft 2	6175	423	1535
	East from Shaft 3	6175	201	1307
	Shaft 3	208	0	208
	West from Shaft 3	5975	409	1739
	East from Shaft 4	5975	0	0
	Shaft 4	—	0	0
	West from Shaft 4	4650	0	0
Total Excavation Contract Tunnels exclusive of Adits and Shafts		296393	10,160	33,268
(In Miles)		56.14	1.92	6.30

TUNNELS ON FORCE ACCOUNT

EAST COACHELLA TUNNEL	(96,460)		
Yellow Canyon Adit	686	0	686
East from Adit	10,204	581	2847
West from Adit	10,076	495	2307
Fargo Canyon Adit	891	0	891
East from Adit	11850	492	2371
West from Adit	15200	443	2325
Berdoo Canyon Adit	2042	0	2042
East from Adit	15824	574	2621
West from Adit	12456	585	2939
Pushawalla Canyon Adit	2935	0	2935
East from Adit	10186	402	968
West from Adit	10664	354	1012

WEST COACHELLA TUNNELS			
1000 Palms			
No. 1, W. Portal	15,043	515	3233
No. 2, E. Portal	3797	570	2977
No. 2, W. Portal	41	0	41
Wide Canyon			
No. 1, E. Portal	5122	0	55
No. 1, W. Portal	9183	575	2494
No. 2 Tunnel	848	0	848
7 Palms			
E. Portal	8390	600	2134
Total Excavation Force Account Tunnels exclusive of Adits and Shafts	138,884	6186	29172
(In Miles)	26.30	1.17	5.53
***Total Tunnel Excavation (In miles)**	**82.44**	**3.09**	**11.83**

*Does not include East Eagle Mt. or Schedules 7 and 8 of the West Coachella Tunnels

NEWS FROM FIELD AND OFFICE

Division Engineer Booth reports that Division No. 1 Headquarters, near the Colorado River, was completed on January 16. Nine buildings were erected—four family cottages, a divisional office, a dormitory, a guest lodge, a mess hall, and a garage. Twenty-five men are now stationed at the headquarters.

* * *

The first single heading in any Colorado River Aqueduct tunnel to pass the 4,000 foot mark is at West Iron Mountain. This was done by Utah Construction Company crews on February 1.

* * *

The Accounting division, well ahead of the rest of the field, can afford to take it easy, with the M. W. D. Bowling League's first half championship already tucked away.

* * *

A map carefully prepared by one of the draftsmen was in the custody of a solicitor of the Right of Way Division one windy afternoon in the Valverde district recently when a Valverde billy goat, feeling the depression and consequent hunger, grabbed one corner of aforesaid map and, with the land owner and solicitor in pursuit, started for parts unknown. The billy goat only had time to understand, consume and digest Casa Loma Siphon when the pursuers rescued the remains of the map after a very lively chase.

* * *

Several employees recently left the Upland office to take positions elsewhere: H. T. Smith with the State Highway Department at San Diego; H. A. McGee and N. W. Randall with the City of Los Angeles; and Charles Craig with the Coast and Geodetic Survey.

* * *

New officers for the Los Angeles Headquarters Tennis Club to serve during 1934 are Merrill Johnson, president; Nancy Featherstone, secretary-treasury; Gertrude Johnson, women's manager, and Ray Osgood, men's manager. The contest with the Edison Company team was a walkaway—for the Edison Company—the only match won by the District being the mixed doubles in which Mabel McFerran and Lynn Smith took first honors. Later this month the District team will meet the Department of Water and Power.

Flying during the month of January for the best camp records for safety, progress, and economy on the Coachella Division were:

Safety Flag—Wide Camp.

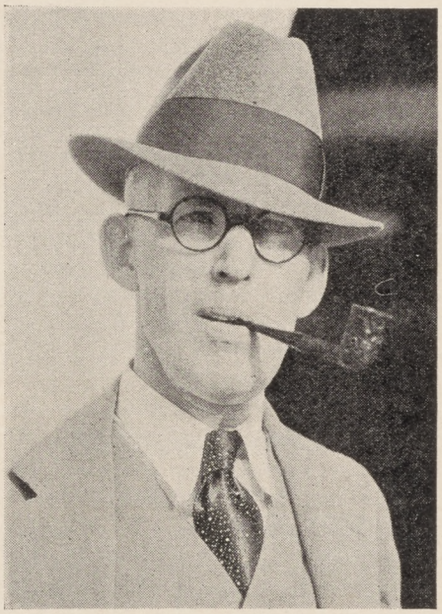
Progress—Berdoo Camp.

Economy—1000 Palms Camp.

The "Hard Hat," emblem of efficiency on Division No. 3, has been awarded by Division Engineer John Stearns to East Coxcomb Tunnel for having the best camp and tunnel during the month of January. Particular attention was called to the excellent condition of the Drill Doctor's shop. The contractor on this job is Winston Brothers.

Climaxing a recent wind storm at Wide Canyon, the wind, with playful intent, sent heavy gusts that blew down the seventy-foot flag pole. Fortunately, there were no flags flying at the time.

* * *



This proves it to be a vile slander—that rumor which has been going the rounds of the aqueduct camps to the effect that the influences of effete Los Angeles have caused Assistant General Manager Burkholder to take up cigarettes in preference to the old briar of his Coachella Division days.

Surfacing of the sixteen-mile aqueduct road from Earp to Parker Dam was completed on January 22 by Clyde Wood, contractor on the job. On the same day work was finished on the two and one-half mile Division No. 1 Headquarters road. The 1-8 mile section from the headquarters to the aqueduct intake site is approximately fifty per cent completed.

* * *

Lieut. Floyd W. Hough, who recently left his post as geodetic engineer for the Metropolitan Water District to re-enter the U. S. Coast and Geodetic Survey, is now stationed at Pinon, N. M.

* * *

Berdoo Camp played host recently to fifty-six members of the Indio Lions Club. The Lions had lunch at the camp and inspected tunnel driving operations.

* * *

Word has been received at the Walsh Construction Company Camp that Tom Walsh, president of the company, will arrive at the job in the near future for a visit of several weeks. The Walsh organization has the Colorado River Tunnel, Copper Basin Tunnels Nos 1 and 2, and Whipple Mountain Tunnel under contract.

* * *

A closely guarded secret was revealed recently when Frank Bort of the Banning office introduced his bride of more than a year to friends at the field headquarters. Mrs. Bort was the former Marietta Baker of Beverly Hills. The wedding occurred in Ventura in November, 1932.

* * *

As an added attraction at Wide Canyon, the Cactus garden and fish pond, developed by Dr. R. T. Evans, has been provoking more than a little attention. Although green vegetation and a fish pond in this section of the desert may seem unlikely, it is a fact, never-the-less. Come up and see it some time.

* * *

Employees at Wide Canyon welcomed the recent opportunity to attend classes in mine-rescue work and turned out with great enthusiasm to study under James Westfield of the U. S. Bureau of Mines.

Group Insurance Drive Under Way

The number of insured employees under our Group Life and Permanent and Total Disability plan underwritten by the John Hancock Mutual Life Insurance Company is increasing rapidly. The number now insured is nearly five times that of what it was when the plan was first adopted.

At the present time we are making a drive to increase the enrollment among the surface workers under the plan. The insurance company is co-operating with us by waiving the physical examination during this campaign on employees who have been with us over 90 days.

A plan is also being worked out by the John Hancock Mutual Life Insurance Company wherein the tunnel workers, i. e., the miners, muckers, powder men, chuck tenders, motormen gunite men, etc., may be included in the plan. The underground employees will be notified as soon as something definite is worked out.

Any surface employee who did not receive a letter outlining the plan may get the necessary information by communicating with the nearest division headquarters office. All uninsured employees are urged to turn in their application card at once.

BOARD OF CONTROL,
EMPLOYEES ASSOCIATION.

Pine Canyon Dam Nearly Complete

Pine Canyon Dam on the San Gabriel River, an important unit of the Colorado River Aqueduct's distribution system, is rapidly nearing completion, according to an engineers' report made last week.

How near the structure is to completion is revealed by the fact that 16,500 acre feet of water already has been impounded.

The Dam is being built by the city of Pasadena to provide a water supply until Colorado River water is brought in. At that time the structure will be taken over by the Metropolitan Water District and used to form a storage basin for the aqueduct water.

This view shows (center) Dr. T. Sheridan Carey, Chief Surgeon-Medical Officer of the Metropolitan Water District, and a part of his staff. In the background is the entrance to the District Hospital at Berdoo Camp on the Coachella Division. Dr. Carey is the author of the health article presented below. Men in the picture are (left to right) Jack Blakeslee, Frank Freeland, W. R. Farnsworth, Alexis Bock, Daniel M. Brown, Fred Phillips, Dr. T. Sheridan Carey, Kenneth Holcomb, P. W. Mikkelsen, W. L. Miller, Charles Sprague, C. M. Canfield, and J. G. Davis.

RULES FOR USE OF WATER BY DESERT WORKERS GIVEN

By DR. T. SHERIDAN CAREY,
Chief Surgeon-Medical Officer

(Editor's Note: Paradoxically, one of the first needs in building a great water supply system is a good local water supply for the men on the job. District engineers have located a number of excellent wells along the aqueduct line, and water from them is being delivered to the camps under modern sanitary conditions. In the accompanying article, Dr. T. Sheridan Carey, chief surgeon-medical officer of the District, points out the personal responsibility of each individual worker in the use and handling of this water.)

Water for drinking purposes should be pure, abundant, easily available and free from all possible sources of contamination. Impure or contaminated water may cause disease. The water bucket and dipper and the common drinking cup are potential sources of infection at all times. The same applies to the common use of water bags, canteens and improperly constructed bubblers on drinking fountains. The common cold, acute respiratory diseases, Vincent's Angina (so-called Trench-Mouth), and many other infectious diseases may be spread by the common use of the above water containers.

Every one working on the desert should have his own water bag or container. Under desert conditions, an individual will need approximately three times the amount of water that he normally would require in the city. Therefore, he will need for his own use all that the water bag will hold. Water bags and containers should be cleansed frequently and dried in the air and sunlight. Dirty water bags are frequently found after the owner complains of gastro-intestinal symptoms.

Bubblers on water fountains should be adjusted so that the lips of the drinker do not come in contact with the bubbler. Some bubblers have metal ring guards to prevent such contact. However, if the drinking fountain is properly constructed, a jet of water of sufficient volume issues from the bubbler at an oblique angle and thus all possible contamination is avoided. The use of individual paper cups is excellent practice when a separate outlet is provided in addition to the bubbler.

Be safe. Keep well. Provide a water container for your own personal use. It may vary in size from a collapsible cup to the larger special equipment.